



WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2005TX198B

Title: Carbon Aerogel Electrodes: Adsorption-Desorption and Regeneration Study for Purification of Water

Project Type: Research

Focus Categories: Treatment, Water Quality, Toxic Substances

Keywords: carbon aerogels, capacitive de-ionization, adsorption

Start Date: 03/01/2005

End Date: 02/28/2006

Federal Funds: \$5,000

Non-Federal Matching Funds: \$15,688

Congressional District: 17th

Principal Investigators:

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Abstract

This project will evaluate the performance of capacitive deionization technology (CDT) as a method to remove saline compounds from contaminated waters. CDT involves the separation of ions by passing saline waters between two oppositely charged electrodes. Anions are collected at the positively charged electrode while cations gather at the negatively charged electrode. CDT uses “aerogels”—which are made from carbon and have a highly porous structure to create a large surface area and provide improved treatment. This study will examine three specific aspects of the performance of CDT filters—a] the removal of metal ions and charged impurities; b] the adsorption and desorption processes that occur in the use of CDT, and c] the extent to which CDT electrodes can be regenerated. CDT is already being explored by TWRI and state water agencies as a technology that may be useful in treating oilfield-produced waters as well as saline ground and surface waters. The project will include close collaboration with the Texas A&M University Petroleum Engineering Department.